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A new species of *Miriquidica* from China

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Abstract — A new lichen species, *Miriquidica yunnanensis,* is described from China. Conspicuous features are its yellowish white to grayish white thallus, black-green epihymenium, colorless to light brown hypothecium, and a unique chemistry. A key to the seven similar *Miriquidica* species is also provided.

Key words — Yunnan, *Lecanorales,* saxicolous, taxonomy

Introduction

The generic concept of *Miriquidica* (*Lecanoraceae*) was first formulated by Hertel & Rambold (1987). It is characterized by lecideine apothecia, Lecanora-type asci, simple ascospores without a perispore, filiform conidia, and the occurrence of miriquidic acid in most species. This widely distributed genus presently includes 26 species worldwide and usually occurs on acidic rocks (Hertel & Rambold 1987; Rambold & Schwab 1990; Timdal 1993; Owe-Larsson & Rambold 2001; Hertel & Andreev 2003; Andreev 2004; Nash et al. 2004; Fryday 2008; Fryday & Coppins 2008; Coppins & Aptroot 2008; Lendemer & Knudsen 2008; Øvstedal et al. 2009). In China, only one species, *M. complanata,* has been reported (Wei 1991).

During our study of the lichen flora of Mt. Laojun in Yunnan province, China, a species of *Miriquidica* new to science was found. Here we present a brief diagnosis, an extended description, and a key to seven similar species in the genus.

Materials & methods

The specimen was collected from Yunnan, China, and is preserved in the Lichen Section of Botanical Herbarium, Shandong Normal University (SDNU). The morphological and anatomical characters of the specimen were examined using a stereo microscope (Nikon SMZ 745T) and a polarizing microscope (Olympus CX41). Lichen substances in the specimen cited were identified using the standardized thin

layer chromatography techniques (TLC) with C system (Orange et al. 2010). The morphological and anatomical photos of the specie were taken under an Olympus SZX16 stereomicroscope and an Olympus BX61 compound microscope with DP72 respectively.

Taxonomic description

Miriquidica yunnanensis Lu L. Zhang & X. Zhao, **sp. nov.** Figs 1–2

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Differs from all other *Miriquidica* spp. by its yellowish white to grayish white thallus, blackish-green epihymenium, colorless to light brown hypothecium, small ascospores, and unique combination of chemical characters.

Type: China. Yunnan province, Mt. Laojun, alt. 4000 m, on rock, 7 Nov. 2009, H.Y. Wang 20121132 (**Holotype**, SDNU).

Etymology: The specific epithet "yunnanensis" refers to Yunnan province, where this species was found.

Thallus crustose, areolate, dispersed on a conspicuous black prothallus; areoles roundish, slightly convex to convex, small, 0.2–0.6(–0.8) mm; upper surface yellowish white to grayish white, due to pigmented hyphae

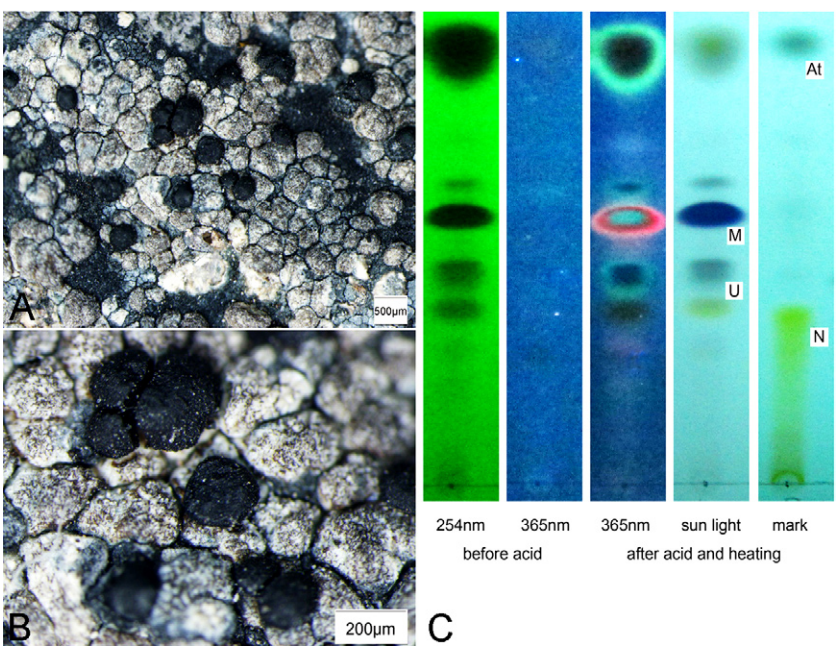

Figure 1. Miriquidica yunnanensis (Holotype: SDNU (Wang 20121132)). A, B. Thallus; C. TLC of chemical components (At = atranorin; M = miriquidic acid; N = norstictic acid; U = unknown substance).

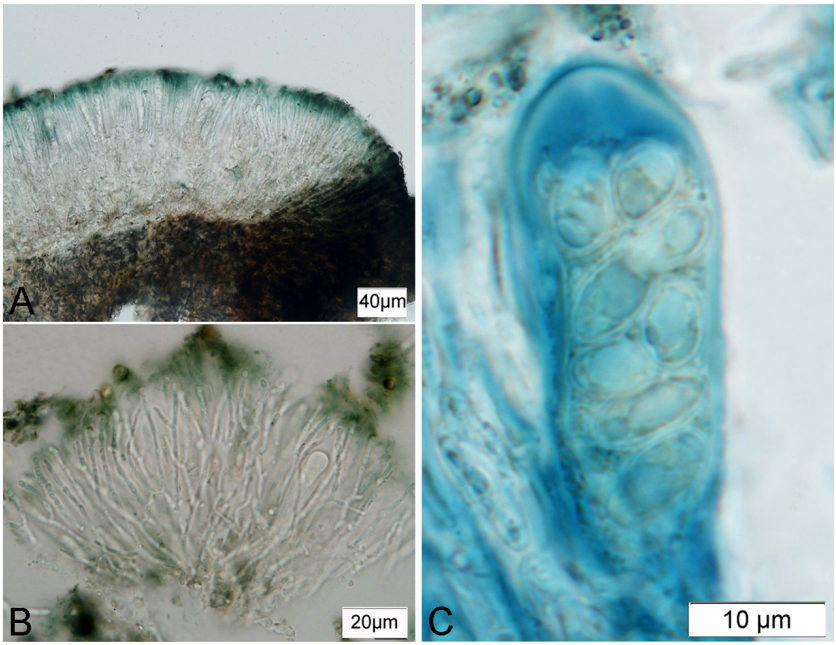

Figure 2. Miriquidica yunnanensis (Holotype: SDNU (Wang 20121132)). A. Section of apothecium; B. Paraphyses, after treatment with K; C. Ascus, after treatment with K/I.

of a lichenicolous fungus appearing dark gray, esorediate; medulla I–, with some granules; photobiont chlorococcoid; algal cells of 7–12.5(–15) μm in diam. Apothecia: sessile, 0.4–0.9 mm in diam.; disc black, flat to convex, usually immarginate; exciple blackish green to black; epihymenium blackish green; hymenium hyaline, 60–70 μm; paraphyses occasionally branched and anastomosing, 1.5–3 μm, apically 2–3.5 μm thick; hypothecium hyaline to pale brown; asci of Lecanora-type s.l., 8-spored; ascospores hyaline, simple, ellipsoid to broadly ellipsoid, 8–11 × 5–6 μm. Pycnidia immersed, blackish; conidia filiform, 10–15 μm long.

Chemistry — Atranorin, miriquidic acid, norstictic acid, and unknown substances present.

Distribution and substrate — Known only from Laojun Mountain, growing on siliceous rock at ca. 4000 m alt.

Comments — Atranorin is not common in *Miriquidica;* only *M. atrofulva* (±) and *M. pycnocarpa* contain it in addition to *M. yunnanensis.* However, *M. atrofulva* is distinguished by a rusty colored thallus with dark blue-gray to blackish soralia and pale brown to olive-brown epihymenium and contains

stictic acid as a major compound; *M. pycnocarpa* differs in its I+ violet medulla, small apothecia (0.15–0.3 mm in diam.), and dark brown hypothecium and contains only atranorin.

Because *Miriquidica yunnanensis* is similar in morphology and anatomy to *M. disjecta, M. griseoatra, M. leucophaeoides, M. limitata,* and *M. paanaensis,* and *M. complanata* has been reported in China, we provide a key to these seven species.

Key to seven similar *Miriquidica* species

1a. Containing fumarprotocetraric acid. . . . . *M. limitata*

1b. Lacking fumarprotocetraric acid 2

2a. Containing atranorin . . . . . *M. yunnanensis*

2b. Lacking atranorin 3

3a. Containing norstictic acid 4

3b. Lacking norstictic acid 5

4a. Thallus white, yellowish, or pale brown, glossy. . . . . *M. leucophaeoides*

4b. Thallus pale gray to gray, tinged yellowish . . . . . *M. paanaensis*

5a. Thallus white to purely white. . . . . *M. disjecta*

5b. Thallus gray, gray-brown or brownish yellow to dark bluish gray, matt 6

6a. Apothecia 0.2–0.7 mm diam., immersed. . . . . *M. complanata*

6b. Apothecia 0.3–1.2 mm diam., sessile . . . . . *M. griseoatra*

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